HYPOTHERMIA IN OLDER PEOPLE
Supporting information

Immediate treatment

The routine administration of antibiotics does not hasten recovery or increase survival?
The 2005 Guidelines from the American Heart Association (Anon, 2005) state that (in accidental hypothermia): “The routine administration of steroids, barbiturates, or antibiotics has not been documented to help increase survival or decrease postresuscitative damage”.

Anon. Guidelines for cardiopulmonary resuscitation and emergency cardiac care. Circulation 2010;122:S639
https://circ.ahajournals.org/content/102/suppl_1/I-229.full?sid=1ebaf44d-2494-4caf-bdfe-cc536f536f76

Evidence Level: V

Subsequent management

There is a high risk of death if temperature <30º C?
Core body temperature <30º C constitutes “severe” hypothermia and represents the point at which the patient is normally unconscious (Keane, 2001).
"Hypothermia is said to exist when the body core temperature (Tco) is below 35°C. Arbitrarily it is classified as MILD (Tco 35 -32°C), MODERATE (Tco 32 - 30°C) or SEVERE (Tco < 30°C)." (Davis, 2006).
The mortality rate from severe hypothermia may be as high as 70-80% (Vassal, 2001) and treatment is imperative to prevent death from cardiopulmonary arrest (Larach, 1995). It has been postulated, however, that prognosis is more closely related to underlying or associated disorders than on the degree of hypothermia or method of rewarming (Lewin, 1981).

Davis PR, Byers M. Accidental hypothermia. J R Army Med Corps 2006; 152: 223-33
http://www.ramcjournal.com/content/151/4/223.full.pdf

Keane C. Physiological responses and management of hypothermia. Emerg Nurs 2000/2001;8:26-31

Larach MG. Accidental hypothermia. Lancet 1995;345:493-8

Lewin S, Brettman LR, Holzman RS. Infections in hypothermic patients. Arch Intern Med 1981;141:920-5

Vassal T, Benoit-Gonin B, Carrat F, et al. Severe accidental hypothermia treated in an ICU: prognosis and outcome. Chest 2001;120:1998-2003
http://journal.publications.chestnet.org/article.aspx?articleid=1080204

Evidence Level: IV

Hypothermia protects against cerebral hypoxia, so continue CPR for longer than usual?
Severe hypoperfusion in the hypothermic patient may be tolerated for extended periods of time due to a significant decrease in oxygen and metabolic demands; basal metabolic rate falls to 50% of normal at 28º C and cerebral blood flow decreases by 6-7% per drop of 1º C (Reuler, 1978). These patients may sustain minimal or no permanent organ dysfunction following resuscitation (Iversen, 1990), which may be successful from initial core temperatures as low as 17º C (Anderson, 1970), and in the absence of circulation for up to 4 hours (Althaus, 1982).

Althaus U, Aeberhard P, Schupbach P, et al. Management of profound accidental hypothermia with cardiorespiratory arrest. Ann Surg 1982;195:492-5
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1352533/pdf/annsurg00146-0136.pdf

Anderson S, Herbring BG, Widman B. Accidental profound hypothermia. Br J Anaesth 1970;42:653-5
http://bja.oxfordjournals.org/content/42/7/653.long

Iverson RJ, Atkin SH, Jaker MA, et al. Successful CPR in a severely hypothermic patient using continuous thoracostomy lavage. Ann Emerg Med 1990;19:1335-7

Reuler JB. Hypothermia: pathophysiology, clinical settings, and management. Ann Intern Med 1978;89:519-27

Evidence Level: V

IV fluids may be warmed in a microwave oven in the A&E department?
An Australian study (Delaney, 2001) advised that microwave ovens were safe to use for this purpose, so long as allowances were made for the characteristics of individual machines, rather than following a standard algorithm, i.e. “2 minutes on a high setting” might lead to fluids being overheated in a high rather than a medium powered oven. An alternative approach would be to use a controlled-temperature device such as the “Hotline” (Presson, 1993).

Delaney A. Reliability of modern microwave ovens to safely heat intravenous fluids for resuscitation. Emerg Med 2001;13:181-5

Presson RG, Bezruczko AP, Hillier SC, et al. Evaluation of a new fluid warmer effective at low to moderate flow rates. Anesthesiology, 1993;78:974-80

Evidence Level: V

Monitoring treatment

Bradycardia and AV block can occur and may require temporary pacing?
Case reports refer to AV block, reversible by rewarming, occurring in accidental hypothermia (Bashour, 1989; Jacob, 1978). Sinus bradycardia is thought to be caused by the direct effect of cold on the SA node of the heart, as it is not altered by atropine (Keane, 2001). Bradycardia worsens as core temperature continues to fall until asystole results (Keane, 2001). Intracardiac pacing is the only effective treatment for episodic severe bradycardia or AV block (Maclean, 1986).

Bashour TT, Gualberto A, Ryan C. Atrioventricular block in accidental hypothermia: a case report. Angiology 1989;40:63-6

Jacob AI, Lichstein E, Ulano SD, et al. A-V block in accidental hypothermia. J Electrocardiol 1978;11:399-402

Keane C. Physiological responses and management of hypothermia. Emerg Nurs 2000/2001;8(8):26-31

Maclean D. Emergency management of accidental hypothermia: a review. J R Soc Med 1986;79:528-31
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1290458/pdf/jrsocmed00186-0032.pdf

Evidence Level: V

Last amended April 2010
Last reviewed March 2025